

What is claimed is:

1. A method for a host system to communicate with and to identify at least one client device that communicates with the host system through a network address translator device, the method comprising:

enabling communications from a first client device through the network address translator device;

receiving a data packet that includes a payload portion and an attribute portion, wherein the attribute portion includes a destination address that indicates a destination for the data packet and a nearest source address;

examining a portion of the received data packet other than the nearest source address for a host-assigned identifier that identifies a client device that communicated the received data packet; and

processing the received data packet in accordance with predetermined host system controls accessible to the host system for the first client device if the host-assigned identifier identifies the first client device.

2. The method as in claim 1 wherein enabling communications includes enabling communications from the first client device operating in a home network through the network address translator device.

3. The method as in claim 1 wherein examining the portion of the data packet includes examining the payload portion of the received data packet for the host-assigned identifier that identifies the client device that communicated the received data packet.

4. The method as in claim 1 wherein examining the portion of the data packet includes examining the received data packet for the host-assigned identifier that differs from the nearest source address and that identifies the client device that communicated the received data packet.

5. The method as in claim 1 wherein enabling communications includes enabling communications from the first client device using a tunneling protocol.

6. The method as in claim 5 wherein enabling communications includes enabling communications from the first client device using L2TP.

5 7. The method as in claim 1 wherein enabling communications includes enabling communications from the first client device without using cookies.

10 8. The method as in claim 1 further comprising assigning to the first client device a first identifier to be included in payload portions of data packets that are communicated between the first client device and the host system, wherein the host-assigned identifier includes the first identifier.

15 9. The method as in claim 8 wherein assigning the first identifier includes assigning the first identifier such that the host system may uniquely identify the first client device through use of the first identifier.

20 10. The method as in claim 1 further comprising:
enabling communications from a second client device that communicates through the network address translator device; and
processing the received data packet in accordance with predetermined host system controls accessible to the host system for the second client device if the host-assigned identifier identifies the second client device.

25 11. The method as in claim 10 further comprising assigning to the second client device a second identifier to be included in payload portions of data packets that are communicated between the second client device and the host system, wherein the host-assigned identifier includes the second identifier.

30 12. The method as in claim 11 further comprising assigning to the first client device a first identifier to be included in payload portions of data packets that are communicated between the first client device and the host system, wherein the host-assigned identifier includes the first identifier, and wherein:

assigning the first identifier includes assigning the first identifier such that the host system may uniquely identify the first client device through use of the first identifier; and

assigning the second identifier includes assigning the second identifier such that the host system may uniquely identify the second client device through use of the second identifier.

13. The method as in claim 11 wherein:
the first identifier includes a first routable IP address; and
the second identifier includes a second routable IP address.

14. The method as in claim 1 wherein the predetermined host system controls include parental controls.

15. The method as in claim 1 wherein the predetermined host system controls include controls over personal identification information communicated to a third party.

16. The method as in claim 1 wherein the predetermined host system controls include controls over a personalized web page.

17. The method as in claim 1 wherein the predetermined host system controls are maintained by the host system.

18. The method as in claim 1 wherein the attribute portion of the received data packet further includes a source address that identifies the network address translator device and the method further comprises:

examining the attribute portion of the received data packet for the source address; and
using the source address to determine whether the received data packet is a first data packet received from the network address translator device;

wherein examining the portion of the received data packet includes examining the payload portion of the received data packet for the host-assigned identifier that identifies the client device that communicated the received data packet only when the received data packet

is determined to be a data packet from the first data packet received from the network address translator device.

5 19. The method as in claim 1 further comprising identifying a user of the first client device based on the examined host-assigned identifier and a user identifier, wherein processing the received data packet includes processing the received data packet based on the examined host-assigned identifier and the user identifier.

10 20. The method as in claim 19 wherein:
the user identifier includes a user name, and
processing the received data packet includes processing the received data packet based on the examined host-assigned identifier and the user name.

15 21. The method as in claim 19 wherein:
the user identifier includes a user name and a password, and
processing the received data packet includes processing the received data packet based on the examined host-assigned identifier, the user name, and the password.

20 22. The method as in claim 1 further comprising identifying the client device from among several client devices based on the examined host-assigned identifier, wherein the received data packet is processed in accordance with the predetermined host system controls accessible to the host system for the identified client device.

25 23. A method for at least one client device to be identified by and to communicate with a host system through a network address translator device, the method comprising:
communicating with the host system using a first client device that communicates through the network address translator device having a nearest source address;
embedding a first identifier to identify the first client device in a portion of a data packet other than the nearest source address communicated between the first client device
30 and the host system; and
sending the data packet to the host system where the host system examines the portion of the data packet and processes the data packet in accordance with predetermined

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host system controls accessible to the host system for the first client device when the portion of the data packet includes the first identifier.

24. The method as in claim 23 wherein:

5 embedding the first identifier includes embedding the first identifier in a payload portion of the data packet communicated between the first client device and the host system, and

10 sending the data packet to the host system includes sending the data packet to the host system where the host system examines the payload portion of the data packet and processes the data packet in accordance with the predetermined host system controls accessible to the host system for the first client device when the payload portion of the data packet includes the first identifier.

15 25. The method as in claim 23 wherein communicating with the host system includes communicating with the host system using the first client device operating in a home network that communicates through the network address translator device.

20 26. The method as in claim 23 wherein communicating from the first client device with the host system includes using a tunneling protocol.

27. The method as in claim 26 wherein communicating from the first client device with the host system includes using L2TP.

25 28. The method as in claim 23 wherein communicating from the first client device with the host system includes communicating from the first client device with the host system without using cookies.

30 29. The method as in claim 23 further comprising receiving the first identifier from the host system to identify the first client device.

30. The method as in claim 29 wherein receiving the first identifier includes receiving the first identifier from the host system for use to uniquely identify the first client device.

5 31. The method as in claim 23 further comprising:
communicating with the host system from a second client device that communicates through the network address translator device;

embedding a second identifier to identify the second client device in a portion of a data packet other than the nearest source address communicated between the second client
10 device and the host system; and

sending the data packet to the host system where the host system examines the portion of the data packet and processes the data packet in accordance with predetermined host system controls accessible to the host system for the second client device when the portion of the data packet includes the second identifier.

15 32. The method as in claim 31 wherein:

embedding the second identifier includes embedding the second identifier in a payload portion of the data packet communicated between the second client device and the host system, and

20 sending the data packet to the host system includes sending the data packet to the host system where the host system examines the payload portion of the data packet and processes the data packet in accordance with predetermined host system controls accessible to the host system for the second client device when the payload portion of the data packet includes the second identifier.

25 33. The method as in claim 31 wherein:

the first identifier includes a first routable IP address; and
the second identifier includes a second routable IP address.

30 34. The method as in claim 31 further comprising receiving the second identifier from the host system to identify the second client device.

35. The method as in claim 34 further comprising receiving the first identifier from the host system to identify the first client device, wherein:

receiving the first identifier includes receiving the first identifier from the host system for use in uniquely identifying the first client device; and

5 receiving the second identifier includes receiving the second identifier from the host system for use in uniquely identifying the second client device.

36. The method as in claim 23 wherein the predetermined host system controls include parental controls.

10 37. The method as in claim 23 wherein the predetermined host system controls include controls over personal identification information communicated to a third party.

15 38. The method as in claim 23 wherein the predetermined host system controls include controls over a personalized web page.

39. The method as in claim 23 wherein the predetermined host system controls are maintained by the host system.

20 40. A computer program stored on a computer readable medium or a propagated signal for a host system to communicate with and to identify at least one client device that communicates with the host system through a network address translator device, comprising:

an enabling code segment that causes the computer to enable communications from a first client device through the network address translator device;

25 a receiving code segment that causes the computer to receive a data packet that includes a payload portion and an attribute portion, wherein the attribute portion includes a destination address that indicates a destination for the data packet and a nearest source address;

30 an examining code segment that causes the computer to examine a portion of the received data packet other than the nearest source address for a host-assigned identifier that identifies a client device that communicated the received data packet; and

a processing code segment that causes the computer to process the received data packet in accordance with predetermined host system controls accessible to the host system for the first client device if the host-assigned identifier identifies the first client device.

5 41. The computer program of claim 40 wherein the enabling code segment causes the computer to enable communications from the first client device operating in a home network through the network address translator device.

10 42. The computer program of claim 40 wherein the examining code segment causes the computer to examine the payload portion of the received data packet for the host-assigned identifier that identifies the client device that communicated the received data packet.

15 43. The computer program of claim 40 wherein the examining code segment causes the computer to examine the received data packet for the host-assigned identifier that differs from the nearest source address and that identifies the client device that communicated the received data packet.

20 44. The computer program of claim 40 wherein the enabling code segment causes the computer to enable communications from the first client device using a tunneling protocol.

25 45. The computer program of claim 44 wherein the enabling code segment causes the computer to enable communications from the first client device using L2TP.

 46. The computer program of claim 40 wherein the enabling code segment causes the computer to enable communications from the first client device without using cookies.

30 47. The computer program of claim 40 further comprising an assigning code segment that causes the computer to assign to the first client device a first identifier to be included in payload portions of data packets that are communicated between the first client device and the host system, wherein the host-assigned identifier includes the first identifier.

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48. The computer program of claim 47 wherein the assigning code segment causes the computer to assign the first identifier such that the host system may uniquely identify the first client device through use of the first identifier.

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49. The computer program of claim 40 wherein:
the enabling code segment causes the computer to enable communications from a second client device that communicates through the network address translator device; and
the processing code segment causes the computer to process the received data packet in accordance with predetermined host system controls accessible to the host system for the second client device if the host-assigned identifier identifies the second client device.

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50. The computer program of claim 49 further comprising an assigning code segment causes the computer to assign to the second client device a second identifier to be included in payload portions of data packets that are communicated between the second client device and the host system, wherein the host-assigned identifier includes the second identifier.

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51. The computer program of claim 50 wherein:
the assigning code segment causes the computer to assign to the first client device a first identifier to be included in payload portions of data packets that are communicated between the first client device and the host system,
the host-assigned identifier includes the first identifier, and
the assigning code segment causes the computer to assign the first identifier such that the host system may uniquely identify the first client device through use of the first identifier and to assign the second identifier such that the host system may uniquely identify the second client device through use of the second identifier.

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52. The computer program of claim 50 wherein:
the first identifier includes a first routable IP address; and
the second identifier includes a second routable IP address.

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53. The computer program of claim 40 wherein the predetermined host system controls include parental controls.

54. The computer program of claim 40 wherein the predetermined host system controls include controls over personal identification information communicated to a third party.

55. The computer program of claim 40 wherein the predetermined host system controls include controls over a personalized web page.

56. The computer program of claim 40 wherein the predetermined host system controls are maintained by the host system.

57. The computer program of claim 40 wherein:
the attribute portion of the received data packet further includes a source address that identifies the network address translator device;

the examining code segment causes the computer to examine the attribute portion of the received data packet for the source address and uses the source address to determine whether the received data packet is a first data packet received from the network address translator device; and

the examining code segment causes the computer to examine the payload portion of the received data packet for the host-assigned identifier that identifies the client device that communicated the received data packet only when the received data packet is determined to be a data packet from the first data packet received from the network address translator device.

58. The computer program of claim 40 further comprising an identifying code segment that causes the computer to identify a user of the first client device based on the examined host-assigned identifier and a user identifier, wherein the processing code segment causes the computer to process the received data packet based on the examined host-assigned identifier and the user identifier.

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59. The computer program of claim 58 wherein:
the user identifier includes a user name, and
the processing code segment causes the computer to process the received data packet based on the examined host-assigned identifier and the user name.

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60. The computer program of claim 58 wherein:
the user identifier includes a user name and a password, and
the processing code segment causes the computer to process the received data packet based on the examined host-assigned identifier, the user name, and the password.

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61. The computer program of claim 40 further comprising an identifying code segment that causes the computer to identify the client device from among several client devices based on the examined host-assigned identifier, wherein the processing code segment causes the computer to process the received data packet in accordance with the predetermined host system controls accessible to the host system for the identified client device.

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62. A computer program stored on a computer readable medium or a propagated signal for at least one client device to be identified by and to communicate with a host system through a network address translator device, comprising:

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a communicating code segment that causes the computer to communicate with the host system using a first client device that communicates through the network address translator device having a nearest source address;

an embedding code segment that causes the computer to embed a first identifier to identify the first client device in a portion of a data packet other than the nearest source address communicated between the first client device and the host system; and

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a sending code segment that causes the computer to send the data packet to the host system where the host system examines the portion of the data packet and processes the data packet in accordance with predetermined host system controls accessible to the host system for the first client device when the portion of the data packet includes the first identifier.

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63. The computer program of claim 62 wherein:

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the embedding code segment causes the computer to embed the first identifier in a payload portion of the data packet communicated between the first client device and the host system, and

the sending code segment causes the computer to send the data packet to the host system where the host system examines the payload portion of the data packet and processes the data packet in accordance with the predetermined host system controls accessible to the host system for the first client device when the payload portion of the data packet includes the first identifier.

64. The computer program of claim 62 wherein the communicating code segment causes the computer to communicate with the host system using the first client device operating in a home network that communicates through the network address translator device.

65 The computer program of claim 62 wherein the communicating code segment causes the computer to communicate with the host system using a tunneling protocol.

66. The computer program of claim 65 wherein the communicating code segment causes the computer to communicate with the host system using L2TP.

67. The computer program of claim 62 wherein the communicating code segment causes the computer to communicate with the host system without using cookies.

68. The computer program of claim 62 further comprising a receiving code segment that causes the computer to receive the first identifier from the host system to identify the first client device.

69. The computer program of claim 68 wherein the receiving code segment causes the computer to receive the first identifier from the host system for use to uniquely identify the first client device.

70. The computer program of claim 62 wherein:

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the communicating code segment causes the computer to communicate with the host system from a second client device that communicates through the network address translator device;

the embedding code segment causes the computer to embed a second identifier to identify the second client device in a portion of a data packet other than the nearest source address communicated between the second client device and the host system; and

a sending code segment causes the computer to send the data packet to the host system where the host system examines the portion of the data packet and processes the data packet in accordance with predetermined host system controls accessible to the host system for the second client device when the portion of the data packet includes the second identifier.

71. The computer program of claim 70 wherein:

the embedding code segment causes the computer to embed the second identifier in a payload portion of the data packet communicated between the second client device and the host system, and

the sending code segment causes the computer to send the data packet to the host system where the host system examines the payload portion of the data packet and processes the data packet in accordance with the predetermined host system controls accessible to the host system for the second client device when the payload portion of the data packet includes the second identifier.

72. The computer program of claim 70 wherein:

the first identifier includes a first routable IP address; and

the second identifier includes a second routable IP address.

73. The computer program of claim 70 further comprising a receiving code segment that causes the computer to receive the second identifier from the host system to identify the second client device.

74. The computer program of claim 73 wherein the receiving code segment causes the computer to receive the first identifier from the host system to identify the first

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client device, such that the receiving code segment causes the computer to receive the first identifier from the host system for use to uniquely identify the first client device and to receive the second identifier from the host system for use to uniquely identify the second client device.

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75. The computer program of claim 62 wherein the predetermined host system controls include parental controls.

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76. The computer program of claim 62 wherein the predetermined host system controls include controls over personal identification information communicated to a third party.

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77. The computer program of claim 62 wherein the predetermined host system controls include controls over a personalized web page.

78. The computer program of claim 62 wherein the predetermined host system controls are maintained by the host system.

FOOTNOTES